

**SEMICONDUCTOR DEVICE, METHOD FOR MANUFACTURING THE SAME,
APPARATUS FOR FORMING FILM, AND METHOD FOR FORMING
HIGH-DIELECTRIC-CONSTANT FILM**

5

Abstract of the Disclosure

A semiconductor device having a gate electrode 7b formed on a silicon substrate 1 through a gate insulating film is constituted by laminating the gate insulating film with a silicon oxide film 4a formed on the silicon substrate 1; an Hf silicate film 5a formed on the silicon oxide film 4a; and a nitrogen-containing Hf silicate film 6a formed on the Hf silicate film 5a, and containing Hf in a peak concentration of 1 atomic % or more and 30 atomic % or less, and nitrogen in a peak concentration of 10 atomic % or more and 30 atomic % or less.